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ABSTRACT

This report examines characteristics of students who enroll in the 50 highly selective universities identified by "U.S. News and World Report" as "Tier 1 National Universities." It explores whether achievement, course-taking patterns, participation in extracurricular activities, having a computer at home, or type of high school attended help predict enrollment of students in these institutions. Data from the National Education Longitudinal Study of 1988 and the 1995 institutional rankings by "U.S. News and World Report" were combined for the analysis. The study found that overall, 10 percent of 1991-92 high school graduates who attended four-year institutions attended Tier 1 universities; Asian/Pacific Islanders were more than twice as likely as Hispanics, blacks, or whites to attend Tier 1 institutions; in 1988 eighth graders with computers at home were twice as likely as others to attend Tier 1 institutions; students scoring 1100 or higher on the Scholastic Assessment Tests were almost five times as likely as those with lower scores to attend Tier 1 institutions; students who earned a 3.5 or higher grade point average and/or took calculus, physics, and advanced foreign languages were three to four times more likely to attend these institutions. The study also examined such variables as socioeconomic status, gender, and high school characteristics. Technical notes are appended. (Contains 11 references.) (DB)

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Statistics in Brief

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Who Goes to America's Highly Ranked "National" Universities?

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Introduction

In September of 1995, *U.S. News and World Report* published listings and rankings of U.S. universities and colleges.[1] These listings and rankings[2] can be used by high school counselors, parents, and students to help narrow down college choices. By providing summary data on average SAT/ACT scores, overall costs, and acceptance rates, the listings also provide a gauge of selectivity for college-bound students—e.g., do I have good enough academic credentials to be accepted? It is with this selectivity in mind that this report examines the question "Who enrolls in *U.S. News and World Report's* Tier 1 National Universities?"[3] It explores whether achievement, course-taking patterns, participation in extracurricular activities, having a computer at home or type of high school attended help predict enrollment of students in selected postsecondary institutions. Because it has been reported that obtaining a degree from a highly selective or elite college or university is related to a host of advantageous outcomes such as increased annual earnings, membership in elite social clubs and groups, and becoming a national leader in politics, business, science, and culture (Kingston and Smart 1990; Pierson 1969; Zweigenhaft 1993; James et. al 1988), this information will be especially useful for those high school students who aspire to enroll in "Tier 1 National" universities.

By merging the lists of colleges and universities from the *U.S. News and World Report* with data NCES collected as part of a national longitudinal study of high school students who are followed into postsecondary education, it becomes possible to examine the characteristics of students who enter the Tier 1 National universities.[4] U.S. universities and colleges are grouped into the following categories by *U.S. News and World Report:* (1) National universities; (2) National liberal arts colleges; (3) Regional universities; and (4) Regional liberal arts colleges. An additional category was added that includes those colleges not listed in the *U.S. News and World Report*. Within each of the four *U.S. News and World Report* categories, colleges are further divided into tiers based on their ranking (e.g., the top 50 ranked schools in the National university category are labeled as Tier one). For the analysis reported in this paper, the focus is on students who enrolled in Tier 1 National universities. Highlights of the analyses include:

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Overall Findings

- For those students who graduated from high school during the 1991–92 academic year, 44 percent attended 4-year colleges or universities by 1994.
- For those going on to 4-year universities and colleges, 43 percent attended National universities, 7 percent attended National liberal arts colleges, 35 percent attended Regional universities, 10 percent attended Regional liberal arts colleges, and 5 percent attended colleges not named in *U.S. News and World Report*. Overall, 10 percent of those attending 4-year institutions attended Tier 1 National universities.

Who Went to Tier 1 National Universities?

The following relationships were found among NELS:88 high school graduates who attended Tier 1 National universities.

- Asian/Pacific Islanders were over two times as likely as Hispanics, blacks, or whites to attend Tier 1 National universities.
- Students who had access to computers at home as eighth-graders in 1988 were over two times as likely as those who did not have access to a computer to attend Tier 1 National universities.
- Students scoring 1100 or higher on the SAT were almost five times as likely as those scoring less to attend Tier 1 National universities.
- Students who received positive comments from their high school teachers were over three times as likely as those not receiving positive comments to attend Tier 1 National universities.
- Students who took calculus in high school were four times as likely to attend Tier 1 National universities as were those who did not take high school calculus.
- Students who earned a 3.5 or higher GPA during high school were three times more likely to attend Tier 1 National universities as were those who earned a lower GPA.
- Students whose highest high school science course taken was physics, compared to those whose highest course was chemistry, were almost three times more likely to enroll in a Tier 1 National university.
- Students who took a third or fourth year of foreign language while in high school were four times as likely to attend Tier 1 National universities as were those who took two years or less of foreign language.

When all of the predictors of enrollment in Tier 1 National universities used in this analysis were jointly examined through a multivariate statistical technique, the above eight emerged as significant. These and other variables such as socio-economic status (SES), gender, and high school characteristics are examined in the sections that follow.

Sources of Data

Nationally representative longitudinal data on the postsecondary educational experiences of a cohort of students[5] who graduated by September of 1992 (National Education Longitudinal Study of 1988) and data from *U.S. News and World Report's* 1995 ranking of colleges and universities were combined for the analyses presented in this report. *U.S. News and World Report* classified postsecondary institutions under four general categories:[6] National universities, National liberal arts colleges, Regional universities, and Regional liberal arts colleges. Schools were then ranked within the four categories according to their combined score from (1) how high they were ranked by university and college presidents, deans, and admissions directors; and (2) where they fell in terms of financial resources, retention rates, makeup of faculty and students and alumni satisfaction. Within each of the four categories schools were categorized into four tiers. For National universities, the 50 highest scoring schools fell into Tier 1, the next 50 or so in tier 2, and so on.

This report focuses not on who attends the number one, two, and three school etc., but on a relatively more stable and clear measure: who attends schools in the top tier of National universities. The decision to limit the analysis to Tier 1 National universities was made for several reasons. First, in this analysis, National universities enrolled 43 percent of the 4-year institution attendees and serve students from across the nation. Thus, many students have access to National universities. Second, they represent universities that have traditionally been associated with excellence in the minds of students, parents, and the general public. The first five schools in Tier 1, for example, are Harvard, Princeton, Yale, Stanford, and MIT (see endnote #1 for list of Tier 1 universities). Even though the decision was made to focus on National Tier 1

universities, table 1 presents statistics for all students who attended 4-year colleges or universities. The denominator is NELS:88 students who attended 4-year colleges or univeristies, not just those who attended National Tier 1 universities. This decision allows readers of this publication to examine students attending the four categories of *U.S News and World Report* colleges and universities, not just Tier 1 universities. Other researchers may decide to limit their analysis to only those students who attended Tier 1 universities.

Focusing on Tier 1 National universities is also a fresh and unique way to look at top colleges. In the past, researchers interested in selectivity of postsecondary institutions were limited in the analyses that they could conduct. For example, colleges could only be grouped by public vs. private, 2-year versus 4-year, and average SAT scores. Previous research was not able to combine a comprehensive institutional level ranking of colleges and universities with an array of student level high school achievement and course-taking information to predict who goes to our nation's highly ranked schools. The merging of *U.S. News and World Report's* ranking of schools and NELS:88 data allows for considerably more information to be extracted on who goes to selected (e.g., Tier 1 National) universities.

Descriptive Results

This report examines the demographic, home, and academic characteristics of graduating seniors who enroll in 4-year colleges or universities. Some 44 percent[7] of NELS:88 students who graduated in 1992 reported attendance at 4-year colleges or universities between 1992 and 1994. The major focus of the analysis in this report is on how the home environment, high school academic course taking, and extracurricular experiences/ accomplishments of these graduates relate to whether they then enrolled in a National Tier 1 university (table 1). Below are discussions of the predictor variables followed by a presentation of their statistical relationship to enrollment in National Tier 1 universities.

Family Demographics and Home Activities

In this section, three demographic variables (gender, race/ethnicity, and socio-economic status (SES)) and one home activity variable (having a computer at home) are examined. The demographic variables were chosen because many federal programs monitor issues related to gender, race/ethnicity, and disadvantaged youth (e.g., equity, civil rights, Chapter 1, Title IX). By the same token, having a computer at home can be thought of as having access to a technological tool that may help equalize opportunities for success in educational pursuits.

Gender

Women have made tremendous progress in postsecondary education over the past two decades so that today they are as likely as men to attend college immediately following high school graduation and to have completed at least a bachelor's degree (U.S. Department of Education, 1997). The question remains, however, whether they match men at enrolling in Tier 1 National universities. Given the trends, one might expect to find little or no difference. The data support this notion of no difference between males and females in that significant differences were not found (see table 1, 11.5 versus 9.2 percent respectively).

Race/Ethnicity

Over the past decade or so both white and minority high school students have: posted gains in math and science achievement test scores, taken more core academic courses, raised their educational aspirations, and increased their college enrollment rates (U.S. Department of Education, 1996). Despite these increases, the gap between whites versus blacks and Hispanics in test scores, core course-taking, and college enrollment rates, although generally narrowing, has not been closed (U. S. Department of Education, 1996). For Asian Americans, on the other hand, on average, their achievement and attainment equal or exceed that of whites (Hsia 1988).

When comparing racial/ethnic groups on who goes to the highly ranked universities, the data reveal higher enrollments by Asians in Tier 1 National universities. Asian students were three times as likely as whites or blacks and over twice as likely as Hispanics to be enrolled in Tier 1 national colleges (26.7 percent versus 9.5, 7.0, and 11.9 percent respectively). In fact, almost 50 percent (49.6) of all Asian students enrolled in National universities were in Tier 1 schools as compared with 29.8 percent for Hispanics, 20.5 percent for blacks, and 21.6 percent for whites.

Outside of Asian Americans, there was no evidence of differences in enrollment at Tier 1 National universities between other racial/ethnic groups.

SES

The socio-economic[8] background (SES) of a student is related to a host of educational outcomes. In fact, short of having information on other characteristics, SES is a consistently strong predictor. Researchers have succeeded at partially unraveling the SES effect. For instance Alexander, Cook and McDill (1978) found that SES's effect on curriculum placement during high school is largely accounted for by its effect on achievement, goals and encouragement. Well-educated and economically successful parents are more likely to know what schools expect of students and are more effective than less successful parents at helping their children perform well in school (Lareau, 1987). Given what we know about SES, it would be expected to have a strong relationship to enrollment in Tier 1 National universities.

For students coming from more advantaged backgrounds (high SES), the data support this hypothesis. In fact, high SES students are almost three times as likely as middle or low SES students to enroll in Tier 1 National universities (15.5 percent versus 5.8 and 4.7 respectively).

Having a Computer at Home

Individuals employed in technologically sophisticated occupations often rely heavily on the capabilities of the computer. Having access to a computer is an important requirement for the development of computer literacy and associated skills such as logical thinking, information management, electronic communication and typing. Does simply having a computer in the household provide children with higher chances of attending the nation's top colleges and universities?

Having had a computer at home[9] during eighth grade was found to be related to postsecondary enrollment in Tier 1 National universities. Students attending 4-year institutions who reported during eighth grade that their family had this tool, compared to those who did not, were more than twice as likely to enroll in a Tier 1 National university (14.1 percent as compared to 6.0 percent).

Characteristics of High School Attended

Type of School Attended

Some parents choose the type of high school that their son or daughter attends. For those choosing private schools, this often means paying out of their own pocket. Often there is a religious goal behind this decision to attend a private school. But the reputation that private schools have for preparing students for college is perhaps another important consideration for parents. Does this choice have implications for the type or ranking of the college or university that graduates of private high schools attend?

For this analysis, type of high school attended by students was not significantly related to enrollment in Tier 1 National universities.

College/University Placement Rate of High School

Results from comparing students who attended a high school with a high college placement rate versus those students who did not attend such a high school indicate that placement rate is strongly related to subsequent enrollment in a Tier 1 National university. Students attending high schools that had at least a 75 percent college placement rate were almost twice as likely (15.2 percent versus 8.4 percent) as students attending schools that did not have a 75 percent college placement rate to attend Tier 1 National universities.

High School Academic Experiences

Grade Point Average

Students are constantly told by parents, teachers and counselors that earning good grades is necessary for acceptance at a reputable college and for eventually obtaining a well-paid job. College and university admissions personnel consider an applicant's grade-point-average (GPA) one indicator of their effort and capabilities. A student's high school GPA should, therefore, distinguish very well between who does or does not go to Tier 1 National 4-year colleges and universities.

GPA, as expected, is strongly related to what type of 4-year college or university college bound seniors enroll. Those who earned a GPA of 3.5 or higher (on a 0–4 scale) were three times as likely than those with less than a 3.5 GPA to attend a Tier 1 National university (21.3 versus 7.1 percent).

Course Taking

Students who expect to go on to college usually prepare themselves through enrolling in college preparatory math, science, and English courses during high school. Some take advanced placement courses in order to get a head start on accumulating college credits or to indicate that they can handle college level material. While many college-bound youth take two years of foreign language, a

seemingly universal college prerequisite, others take as much foreign language as possible. Course-taking patterns such as these should, therefore, be strongly related to who goes to Tier 1 National colleges and universities.

Mathematics

Advanced mathematics course taking is strongly related to enrollment in highly ranked schools. Students who took calculus compared to those who did not were almost four times as likely to enroll in a Tier 1 National university (24.3 versus 6.2 percent).

Science

Taking physics during high school has a clear relationship to type and rank of postsecondary institution attended by college-bound students. Students whose highest science course taken was physics compared to those whose highest course was chemistry or neither chemistry nor physics were more likely to enroll in a Tier 1 national universities (16.6 versus 5.6 and 3.1).

Foreign Language

Taking a third or fourth year of a foreign language while in high school was related to enrolling in Tier 1 National universities. In fact, the more credits earned in foreign languages past the second year, the greater the probability of enrolling in Tier 1 National universities (21.6 for 4th year and 13.6 for 3rd year versus 4.4 for 2nd year and 2.1 for less than 2nd year).

Advanced Placement Exams

College-bound students who took one or more AP exams had markedly different enrollment patterns than those who did not. They were more likely to enroll in Tier 1 National universities (33.8 versus 8.8 percent).

In summary, high school students who take tougher, more advanced course work or sequences of courses during high school are more likely to attend Tier 1 National universities.

SAT Scores

Performance on SAT/ACT[10] college placement tests are designed to reflect in part accumulated skills, knowledge, and abilities that are often critical for surviving the demands of college life. Nearly every 4-year college or university uses them in admissions decisions. In fact, highly ranked colleges and universities achieve their distinction partly by admitting only students with the highest achievement test scores.

A strong relationship is evident between Scholastic Achievement Test (SAT) scores and postsecondary enrollment. College bound seniors who scored 1100[11] or more compared to those who scored less were almost five times as likely to enroll in Tier 1 National universities (25.0 versus 5.5 percent). For those scoring at or above 1250, as compared to those scoring below 1250, the difference was 37.1 percent versus 8.2 percent.

Participation in Extracurricular Activities

Colleges and universities not only select students based on their SAT scores but also on how well-rounded they are. Being involved in extracurricular activities is often said to help students become more knowledgeable or rounded. Research finds that involvement in extracurricular activities while in high school decreases chances of dropping out (McNeal, 1995). Involvement may also be associated with greater chances of acceptance at top colleges and universities.

College attendees who participated in two or more high school activities were about twice as likely to attend Tier 1 National universities as those who did not participate in two or more activities (12.0 versus 5.7 percent).

Receiving Positive Teacher Comments

For many employers, written and/or oral comments from knowledgeable individuals help provide a close or personal evaluation of a person's strengths and weaknesses. Using the same reasoning, positive teacher comments should add value to a student's college application. In NELS:88, teachers were given the opportunity to rate sampled students on various dimensions such as: whether they considered the student motivated for postsecondary education or whether they thought that their class was not challenging to the student (see U.S. Department of Education, 1995). For this analysis, teacher comments for each individual were classified as being "positive" or "not positive."

Students who received positive comments from their teachers were more likely than those who did not to enroll in Tier 1 National universities (16.1 versus 5.1 percent).

Multivariate Results

Enrollment in *U.S. News and World Report's* Tier 1 National colleges and universities, according to results from the crosstabulations presented above, is related to factors such as achievement and course taking as well as family socio-economic status. Because these factors tend to correlate highly with each other, it might be asked which of these factors best predict enrollment in Tier 1 National universities? Answering this question requires a statistical tool, called logistic regression, which allows a dichotomous outcome to be predicted simultaneously by multiple explanatory variables. The outcome of interest in this multivariate analysis is the profile of students attending Tier 1 National universities compared to all other students attending 4-year colleges and universities.

Results from a multiple logistic regression analysis are reported in table 2. Several factors were related to attendance at Tier 1 National universities. For example, students attending Tier 1 National universities were more likely to have earned a high GPA in high school, even after adjusting for the types of courses taken, SAT scores, participation in school activities, teacher recommendations, type of high school, and family SES. In other words, after simultaneously adjusting for influence of all the other predictor variables in the analysis, GPA was still related to attending a Tier 1 National university.

Many course-taking variables continue to be related to enrolling in a Tier 1 university after accounting for the influence of the rest of the analysis variables. Students in Tier 1 National universities were more likely to have taken calculus, physics, or three or more years of foreign language. Once SAT scores and GPA were taken into consideration, though, the evidence was not strong enough to conclude that students enrolled in Tier 1 National Universities were more likely to have taken AP exams.

After adjusting for differences between students on all other analysis variables, high SAT scores remain a significant predictor of who goes to Tier 1 National universities. More students who scored 1100 or higher than students who scored lower enrolled in a Tier 1 National university.

Participation in school and after school activities was not related to who attends a Tier 1 National university once the influence of variables representing achievement, course taking, teacher comments, and so on, was accounted for. There was no evidence that students who were involved in extracurricular activities versus those who were not were more likely to attend a Tier 1 National university. Positive teacher comments, however, remained a significant predictor of enrollment in Tier 1 National universities.

The variables representing high school characteristics in this analysis, type of high school and college placement rate, did not have a significant relationship to enrollment after adjusting for the achievement and course-taking characteristics of students.

Family SES had a strong, bivariate relationship to the type of college or university in which students enrolled. After controlling for differences between students on achievement, course taking, teacher comments and other variables, it had no significant relationship to enrollment in Tier 1 National universities. Interestingly, students who reported having a computer in their home during eighth grade[12] were more likely than those who did not to enroll in a Tier 1 National university, even after adjusting for SES and other correlates.

Since Asian was the only racial/ethnic category related to enrollment in Tier 1 National universities, they were the only group used in comparison to others in the logistic regression analysis. After accounting for differences in achievement, course taking, teacher recommendations, computer availability, and SES, Asian American students were still more likely than others to enroll in Tier 1 National universities.

Summary

This study provided a profile of high school students who go on to *U.S. News and World Report's* Tier 1 National universities. It identified a number of the characteristics of high school seniors that have a simple, statistical relationship to enrollment in Tier 1 National universities as well as those that hold up after more complex statistical examination. The findings, in general, underscore the importance of high school achievement and course taking.

Among those students enrolling in 4-year colleges and universities, those who during high school enrolled in the highest mathematics, physics and foreign language courses, who scored high on the SAT or had a high GPA, obtained positive teacher comments, and had a computer at home during eighth grade were the ones with the best chances of being enrolled in a Tier 1 National university. In addition, it was found that Asian American students were more likely to enroll in Tier 1 National

universities despite adjusting for an array of possible explanations.

This report has uncovered a wealth of descriptive information about who goes to America's highly ranked universities. It has identified the strongest predictors, among the many significant correlates, of enrollment in Tier 1 National universities. More research needs to be done to better understand the role of the factors considered here, indirect effects and additional correlates. The following questions need to be examined. What types of interaction are present among the predictors? What are the most important predictors of enrollment in universities as opposed to liberal arts colleges? What set of factors predict enrollment in Tier 1 Regional universities or lower tier schools? Outcomes besides those developed here, such as enrollment at highly ranked business or engineering colleges, could be pursued in the future. Comparisons among those who go to community colleges could also add more to our understanding of postsecondary education. What role does transferring between universities and enrollment of nontraditional students have in shaping the composition of respected institutions? The findings in this report represent one step towards understanding "who goes to highly ranked schools in America."

Endnotes

1. On September 18, 1995, *U.S. News and World Report* published a report titled "America's Best Colleges." In this report, universities and colleges were classified under four general categories: National universities, National liberal arts colleges, Regional universities, and Regional liberal arts colleges. Schools were then ranked within the four categories according to their combined score from (1) how high they were ranked by university and college presidents, deans, and admissions directors and (2) where they fell in terms of financial resources, retention rates, makeup of faculty, and students and alumni satisfaction. Within each of the four categories schools were categorized into four tiers. For example, within the National Universities, the 50 highest scoring schools fell into tier 1, the next 50 in tier 2 and so on. As listed in the September 18, 1995 issue of *U.S. News and World Report*, the Tier 1 universities are:

Harvard University, Princeton University, Yale University, Stanford University, Massachusetts Institute of Technology, Duke University, California Institute of Technology, Dartmouth College, Brown University, John Hopkins University, University of Chicago, University of Pennsylvania, Cornell University, Northwestern University, Columbia University, Rice University, Emory University, University of Notre Dame, University of Virginia, Washington University, Georgetown University, Vanderbilt University, Carnegie Mellon University, University of Michigan at Ann Arbor, Tufts University, University of California at Berkeley, University of North Carolina at Chapel Hill, University of California at Los Angeles, University of Rochester, Brandeis University, Wake Forest University, University of Wisconsin at Madison, Lehigh University, College of William and Mary, Case Western Reserve University, New York University, Boston College, Tulane University, Rensselaer Polytechnic Institute, University of California at Davis, Penn State University, Georgia Institute of Technology, University of California at San Diego, University of Southern California, Rutgers University, University of Illinois at Urbana-Champaign, University of Florida, University of California at Irvine, Syracuse University, and University of Washington.

2. When this report was in the planning stages, several published sources of college profiles or rankings were considered for merging with the NELS:88 data. Two of these sources were contacted. *U.S. News and World Report* granted permission for NCES to use their rankings. The other source declined.

3. See endnotes 1 and 4 for descriptions of Tier 1 National universities.

4. How does *U.S. News and World Report* determine the various academic categories? Under the Methodology section of the September 18, 1995 volume of *U.S. News and World Report,* the following description was presented: "We divided the 1,419 accredited 4-year schools in the survey into categories based on classifications maintained by the Carnegie Foundation for the Advancement of Teaching. To simplify the groupings, several categories were combined, and some larger ones subdivided by region. Schools with fewer than 200 students were not ranked. Nor were the five service academies: too few in number. Finally, because of the new rankings of business and engineering programs, we eliminated the categories of schools specializing in these disciplines. Here are this year's categories: The largest and best-known schools are the 229 national universities. These usually have more selective admissions and greater resources. They offer a wide range of baccalaureate programs, place a high priority on research and award many Ph.D.'s. The 161 national liberal arts

colleges are also highly selective but emphasize—and award more than 40 percent of their degrees in—liberal arts. The 505 regional colleges and universities offer a full range of bachelor's degrees and award at least 20 master's degrees each year. They are subdivided by region, as are the 423 regional liberal arts colleges. The latter award 60 percent of baccalaureate degrees in occupational, technical and professional fields and are less selective than the national liberal arts colleges."

5. The student sample used for this study included high school seniors who met the following criteria: (1) graduated by September of 1992; (2) transcripts were collected as part of the second follow-up data collection activities; (3) the transcript included records of courses taken in 9th, 10th, 11th, and 12th grades; (4) the transcript reported at least 16 credits, (5) the results of SAT or ACT tests were included on the transcript, and (6) the respondent reported attending a 4-year college or university (as of third follow-up).

6. See endnote # 4.

7. Prior to limiting the analysis to students who went on to enroll in 4-year colleges, it was determined that 43.6 percent of all NELS:88 students who met the six criteria listed in endnote 6 above, enrolled in 4-year colleges. See section of technical appendix "Characteristics of Retained and Excluded Students" for discussion of possible bias due to missing data.

8. Definitions for socio-economic status (SES) and other variables are included in the technical appendix.

9. In reviewing these results, the reader should take into consideration the increase in the number of homes with computers between the years 1988 to 1998. Presumably, the average eighth-grader in 1998, as compared to those in 1988, has greater access to home computers.

10. Alternatively, some students take the ACT, where a score of 24 is the equivalent for the 1100 SAT score used in this paper as an admission requirement. For this sample, a score of 1100 on SAT and 24 on the ACT are equivalent to the 70th percentile. The SAT/ACT crosswalk was developed using NELS:88 data and is used in this analysis under the variable name "SAT 1100 or higher." See appendix for detailed description.

11. The SAT test has been recentered by the Educational Testing Service for tests taken in April 1995 and thereafter. Because of this recentering, organizations such as the NCAA have approved a recentered score of 820 to be equivalent to a score of 700 on previous tests. For this publication, SAT scores have not been recentered because the SAT tests taken by members of the 1988 eighth-grade cohort were administered prior to 1993.

12. See endnote # 9.

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Appendix: Technical Notes for NELS:88

The NELS:88 base year comprised a national probability sample of all regular public and private 8th grade schools in the 50 states and the District of Columbia in the 1987–88 school year. During the base year data collection, students, parents, teachers, and school administrators were selected to participate in the survey. Twenty-four thousand, five hundred ninety-nine eighth-grade students participated (93 percent response rate) in the base-year survey (see NELS:88 Base Year Sample Design Report, NCES 90–463).

The NELS:88 first follow-up survey was conducted during the spring of 1990. Students, dropouts, teachers, and school administrators participated in the follow-up, with a successful data collection effort for 17,424 individuals in the student survey (approximately 93 percent response rate). Prior to data collection, the sample was freshened with 10th-grade students who did not have the opportunity (e.g., out of country) to be in the 8th-grade sample during the base-year (see NELS:88 First Follow-up Final Technical Report - NCES 94–632).

During second follow-up data collection activities (1992), data were collected from students, dropouts, parents, teachers, school administrators, and extant high school transcripts. Again, as was done in the first follow-up, the student sample (overall response rate = 91 percent) was freshened. In addition, transcripts were collected from 15,091 respondents who were part of the contextual student sample (92 percent response rate). (See NELS:88 Second Follow-up Transcript component Data File User's Manual - NCES 95–377.)

During third follow-up data collection activities (1994), data were collected from 14,915 respondents (94 percent response rate). As of 1994, these respondents had taken many different paths that included (1) dropping out of high school, (2) high school graduation, (3) entry into the world of work, (4) entry into postsecondary education, and (5) family formation. For those going on to postsecondary education, information was collected on type of college attended and activities experienced while in college. (See Third Follow-up Technical Report "National Education Longitudinal Study Methodology Report" - NCES 96–174.)

Characteristics of the Sample Used for This Report

The student sample used for this study included all graduating seniors who met the following criteria: (1) graduated by September of 1992; (2) transcripts were collected as part of the second follow-up data collection activities; (3) the transcript included records of courses taken in 9th, 10th, 11th, and 12th grades; (4) the transcript reported at least 16 credits, (5) the results of SAT or ACT tests were included on the transcript, and (6) the respondent reported attending a 4-year college or university (as of third follow-up). For purposes of this analysis, the third follow-up transcript panel weight (F3TRSCWT) was used. The analytical sample used in this report is considered to be representative of high school seniors who took the SAT/ACT tests and enrolled in a 4-year college or university. It should be pointed out, though, that the sample is reduced by 7.7 percent (79,000 missing out of 1,026,000 students attending 4-year institutions) with the deletion of NELS:88 students (weighted) who attended 4-year institutions, but had incomplete data. This means that the overall response rate for third follow-up is reduced from 94 percent down to 86.7 percent (94 percent X 92.3 percent).

Characteristics of Retained and Excluded Students

Table 3 presents the characteristics of third follow-up NELS:88 respondents who participated in the second and third follow-ups and who were also part of the transcript study. In the table, these respondents are categorized into the following groups: (1) attended 4-year college and had complete data; (2) attended 4-year college, but did not have complete data; and (3) did not attend 4-year college or were not in sample. In comparing 4-year college students who were included in the study (group 1) versus 4-year college students who had incomplete data (group 2), the entries for these groups do not seem to indicate any systematic bias for gender and SES in that the proportion of the subgroups are not statistically different. Group 2 was though slightly more likely to be Asian or to come from a Catholic school than group 3.

Sampling Errors

The data were weighted using the third follow-up transcript weight (F3TRSCWT) to reflect the sampling rates (probability of selection) and adjustments for unit nonresponse. The complex

sample design was taken into account when a Taylor series approximation procedure was used to compute the standard errors in this report. The standard error is a measure of the variability of a sample estimate due to sampling. It indicates, for a given sample size, how much variance there is in the population of possible estimates of a parameter. If all possible samples were selected under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true population parameter being estimated for about 95 percent of these samples (i.e., 95 percent confidence interval). Comparisons noted in this report are significant at the 0.05 level and were determined using Bonferroni adjusted t-tests.

Standard errors for all of the estimates are presented in table 1. These standard errors can be used to produce confidence intervals. For example, an estimated 43.0 percent of NELS:88 college attendees enrolled in National universities (see table 1). This figure has an estimated standard error of 1.42 percent. Therefore, the estimated 95 percent confidence interval for this statistic is approximately 42.16 percent to 45.84 percent.

Definitions of Criteria Used

(1) *U.S. News and World Report's* methodology for grouping universities and colleges—How does *U.S. News and World Report* determine the various academic categories? Under the Methodology section of the September 18, 1995 volume of *U.S. News and World Report,* the following description was presented: "We divided the 1,419 accredited 4-year schools in the survey into categories based on classifications maintained by the Carnegie Foundation for the Advancement of Teaching. To simplify the groupings, several categories were combined, and some larger ones subdivided by region. Schools with fewer than 200 students were not ranked. Nor were the five service academies: too few in number. Finally, because of the new rankings of business and engineering programs, we eliminated the categories of schools specializing in these disciplines. Here are this year's categories: The largest and best-known schools are the 229 National universities. These usually have more-selective admissions and greater resources. They offer a wide range of baccalaureate programs, place a high priority on research and award many Ph.D.'s. The 161 National liberal arts colleges are also highly selective but emphasize—and award more than 40 percent of their degrees in—liberal arts. The 505 regional colleges and universities offer a full range of bachelor's degrees and award at least 20 master's degrees each year. They are subdivided by region, as are the 423 regional liberal arts colleges. The latter award 60 percent of baccalaureate degrees in occupational, technical and professional fields and are less selective than the national liberal arts colleges."

The September 18, 1995, *U.S. News and World Report* classified postsecondary institutions under four general categories: National universities, National liberal arts colleges, Regional universities, and Regional liberal arts colleges. Schools were then ranked within the four categories according to their combined score from (1) how high they were ranked by university and college presidents, deans, and admissions directors and (2) where they fell in terms of financial resources, retention rates, makeup of faculty and students and alumni satisfaction. Within each of the four categories, schools were categorized into four tiers. For example, within the National Universities, the 50 highest scoring schools fell into tier 1, the next 50 in Tier 2 and so on.

(2) Overall High School Grade Point Average (GPA)—4-point scale, where an 'A' is equal to 4.0 and a 'D' is equal to 1.0. Each course in the transcript file, that was taken for credit (not pass/fail), was used in the computation. The numerator was the sum over all courses of each course grade factor times the standard course credits for that course. The denominator was the sum of standard course credits. The grade factor was assigned as follows:

A+,A	=	4.0
A-	=	3.7
B+	=	3.3
B	=	3.0
B-	=	2.7
C+	=	2.3
C	=	2.0
C-	=	1.7
D+	=	1.3
D	=	1.0
D-	=	0.7
F	=	0.0

(3) SAT Equivalent Score—A SAT composite score was calculated by summing the SAT mathematics and verbal test scores as reported on student transcripts. If any one of these two scores was missing, the composite score was set to missing. If the SAT composite was missing or not reported on transcript, the ACT composite test score (again from transcript) was used to create an equivalent SAT composite score. In creating an equivalent

SAT composite test score, weighted percentiles were created using the college bound (complete) subsample for SAT and ACT composite scores found on the NELS:88 transcript file. ACT test scores were examined by comparing the weighted percentiles for SAT test scores of 950, 1100, and 1250 (cutoffs used in analyses reported in this paper). These percentiles were found to be 44 percent, 70 percent, and 88 percent respectively, which equate to ACT test scores of 21, 24, and 28. In examining these three ACT test scores, though, it was found that: an ACT score of 21 corresponded to weighted percentiles of 41 percent to 48 percent; an ACT score of 24 corresponded to weighted percentiles of 65 percent to 70 percent; and an ACT score of 28 corresponded to weighted percentiles of 87 percent to 91 percent. In an attempt to improve this possible discrepancy in the crosswalk between ACT and SAT scores the following steps were taken:

a) 62.5 percent (5 out of each 8) of ACT scores of 21 were randomly assigned a SAT950 score of 1 with the remaining students in this category receiving a 0.

b) 16.6 percent (1 out of each 6) of ACT scores of 24 were randomly assigned a SAT1100 score of 1 with the remaining students in this category receiving a 0.

c) 80 percent (4 out or each 5) of ACT scores of 28 were randomly assigned a SAT1250 score of 1 with the remaining students in this category receiving a 0.

(4) Teacher comments—First follow-up teacher responses were used as the primary source of information for the teacher comment variable. If first follow-up data was missing (e.g., incomplete/missing teacher data or student was freshened into study as 12th-grader), data from second follow-up teachers was used. The following variables were used to create the teacher comment variable.

First Follow-up Teacher Variables

F1T1_4 - Will this student probably go to college?

F1T1_13 - Is this class NOT challenging enough for this student?

F1T1_14 - Have you recommended this student for academic honors, advanced placement, or honors classes?

F1T2_3 - Which of the following best describes the "track" this class is considered to be?

Second Follow-up Teacher Variables

F2T1_4 - Student seems to be motivated to pursue postsecondary education.

F2T1_8 - The difficulty level of this class is not challenging enough for this student.

F2T1_18A - The teacher wrote a postsecondary recommendation for this student.

F2T2_3 - Which of the following best describes the "track" this class is considered to be?

In selecting students who were classified as potentially receiving a "glowing" teacher recommendation that may be needed for the most competitive colleges, the following conditions had to be met.

If at least one first follow-up teacher's responses for a given student (up to two teachers per student) met the following criteria, the student was classified as receiving a potentially "glowing" recommendation.

IF F1T1_4 = 1 AND

(F1T1_13=2 OR F1T1_14=2 OR F1T2_3=2)

To meet this criteria, at least one teacher had to respond that the student had the ability to go on to college. In addition, the same teacher had to respond that one of the following three conditions existed: (1) the class was not challenging for the student, (2) the teacher had recommended the student for academic honors, advanced placement, or honors classes, or (3) the teacher indicated the current class was advanced or honors.

If first follow-up teacher data was incomplete or missing (e.g., students freshened into study as seniors), second follow-up teacher responses (math or science teachers) was used to create "recommendation" variable. For students meeting these conditions (e.g., missing 1st follow-up teacher data), the following code was used to create teacher recommendation variable.

IF F2T1_4 = 1 AND

(F2T1_8=2 OR F2T2_3=5 OR F2T1_18A=1)

The second follow-up teacher indicated that the student was motivated to pursue postsecondary education. In addition, the teacher had to respond that one of the following three conditions existed: (1) the class was not challenging to the student; (2) the teacher indicated the current class is advanced placement; or (3) the teacher indicated that he/she had written a postsecondary letter of recommendation for student.

(5) Participation in extracurricular school activities—Students who participated in two or more activities during their 12th grade year met this criteria if they also indicated on the second follow-up questionnaire that they spent greater than zero hours per week in these activities. In deriving this composite, participation in multiple sports counted as one activity. Also, if the student responded that their school did not offer a particular activity, then the responses to that activity were set to missing. If all activity responses were missing, the composite variable for student participation was set to missing.

(6) Attendance at 4-year college—For this analysis, a student was considered to be attending a 4-year college if "first institution attended " (PSEFIR and PSEFIRTY) was a 4-year college (values 5 and 6).

(7) Gender of student (F3SEX)—F3SEX is based on the first follow-up (F1SEX) composite and is augmented by second follow-up new student supplement information (in F2N2) if appropriate or, if still missing, by imputation from student first names.

(8) Student's race/ethnicity (F3RACE1)—F3RACE is based on F1RACE (first follow-up race/ethnicity variable) and is supplemented when appropriate with second follow-up new student supplement data (in F2N17). If F2RACE1 was still missing, available information from the contractor's Survey Management System was used to fill in missing values.

(9) Socio-Economic status of student's family (F2SES1Q)—Indicates the quartile into which F2SES1 falls (level 1 = bottom 25 percent; level 2 = middle two quartiles; and level 3 = high 25 percent). F2SES1 was constructed using base year parent questionnaire data, when available. The following parent data were used: Father's education level, mother's education level, father's occupation, mother's occupation, and family income (data coming from BYP30, BYP31, BYP34B, BYP37B, and BYP80). See page H-12 in NELS:88 Second Follow-up User's Manual for a detailed description of procedures used to create the SES variable.

(10) Type of school attended by student during 12th grade - G12CTRL2

(11) Computer at home during eighth grade—(BYS35H for eighth-grade students; F1N21H and F2N12H for freshened students). This composite was created using the response to the base year student questionnaire from students who were part of the 1988 eighth grade cohort, and the new student supplements for students who entered the sample as freshened students.

(12) Calculus—F2RCAL_C.

(13) Chemistry—F2RCHE_C.

(14) Physics—F2RPHY_C.

(15) Foreign languages—used course credits as read from transcripts.

(16) Attended high school with at least 75 percent college/university placemen—(F2C27B = 6).

(17) Took AP exams—Positive response to any of the following variables (F2RAPBIO-F2RAPUSH).

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Table 1. —Percent of 1992 high school graduates who enroll in selected 4-year universities and colleges, by type of school attended, and selected demographic and academic characteristics

	National Universities			Regional Universities			National Liberal Arts Colleges			Regional Liberal Arts Colleges			Other Schools
	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All
1991/92 high school graduates enrolling in 4-year schools	43.0	10.3	32.8	34.8	10.5	24.3	6.6	2.9	3.7	10.3	3.2	7.1	5.3
std. error	1.42	0.75	1.36	1.47	0.82	1.28	1.49	1.41	0.42	0.74	0.47	0.59	0.68
GENDER													
Male	43.9	11.5	32.4	32.9	10.2	22.7	8.0	4.6	3.4	9.5	3.0	6.4	5.8
std. error	2.14	1.23	1.75	2.00	1.11	1.66	2.93	3.01	0.51	1.13	0.85	0.82	0.89
Female	42.3	9.2	33.1	36.4	10.8	25.6	5.4	1.5	3.9	11.0	3.3	7.6	5.0
std. error	1.75	0.81	1.67	1.81	1.11	1.66	0.71	0.27	0.62	0.86	0.43	0.78	0.88
Race\ethnicity													
Asian, Pacific Islander	53.8	26.7	27.1	27.1	9.1	18.0	4.6	2.7	2.0	3.8	0.8	3.0	10.7
std. error	4.70	3.76	4.30	4.36	2.69	3.58	1.70	1.07	1.34	1.24	0.41	1.16	3.33
Hispanic	40.0	11.9	28.1	41.1	9.4	31.8	1.2	0.6	0.6	11.6	7.8	3.8	6.1
std. error	5.12	3.46	4.23	4.78	2.43	4.32	0.47	0.27	0.38	4.81	4.82	1.24	1.91
Black, not Hispanic	34.1	7.0	27.1	40.5	5.9	34.5	2.5	0.7	1.8	16.5	0.3	16.1	6.5
std. error	3.43	1.58	3.21	4.38	1.84	4.49	0.67	0.34	0.57	2.56	0.25	2.56	3.60
White, not Hispanic	43.9	9.5	34.4	33.9	11.3	22.6	7.8	3.5	4.3	9.7	3.4	6.3	4.6
std. error	1.62	0.74	1.65	1.64	0.95	1.40	1.91	1.83	0.53	0.77	0.41	0.66	0.57
Socio-economic status (SES)													
Low quartile	26.8	4.7	22.0	49.7	8.4	41.3	1.5	0.4	1.2	13.9	2.0	11.9	8.1
std. error	2.84	1.27	2.74	3.30	1.38	3.33	0.55	0.20	0.51	2.07	0.57	2.01	2.05
Middle quartiles	37.5	5.8	31.7	40.3	10.1	30.2	3.7	0.4	3.2	12.6	3.8	8.8	5.9
std. error	1.77	0.74	1.78	1.98	1.29	1.87	0.69	0.17	0.66	1.21	0.81	0.93	1.24
High quartile	51.3	15.5	35.8	26.7	11.1	15.6	10.4	5.8	4.6	7.3	2.7	4.6	4.4
std. error	2.27	1.21	2.10	1.86	1.11	1.47	2.90	2.84	0.57	0.86	0.45	0.75	0.65
Had a computer at home during high school													
Yes	48.4	14.1	34.2	29.9	10.4	19.6	8.4	4.8	3.5	8.8	2.5	6.2	4.6
std. error	1.93	1.04	1.86	1.75	1.00	1.42	2.53	2.61	0.47	0.93	0.40	0.82	0.56
No	37.7	6.0	31.7	40.3	10.6	29.7	4.4	0.8	3.5	12.3	4.0	8.3	5.3
std. error	1.74	0.76	1.67	2.00	1.27	1.89	0.62	0.19	0.59	1.18	0.88	0.89	1.08

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Table 1. —Percent of 1992 high school graduates who enroll in selected 4-year universities and colleges by type of school attended, and selected demographic and academic characteristics—Continued

	National Universities			Regional Universities			National Liberal Arts Colleges			Regional Liberal Arts Colleges			Other Schools
	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All
Type of high school attended during senior year													
Public	42.2	9.4	32.8	36.0	10.5	25.5	4.7	1.2	3.5	11.1	3.4	7.7	5.9
std. error	1.42	0.82	1.36	1.45	0.88	1.29	0.54	0.23	0.47	0.84	0.54	0.67	0.77
Catholic	53.4	11.5	41.9	35.2	13.7	21.5	5.0	1.6	3.4	5.1	1.0	4.1	1.3
std. error	4.46	2.54	4.41	4.95	2.63	5.03	1.90	0.88	1.21	1.25	0.46	1.17	0.51
Other private	37.8	18.7	19.0	18.1	6.0	12.1	32.0	26.4	5.7	8.1	4.0	4.0	4.1
std. error	9.17	5.30	5.70	5.44	3.05	4.18	14.36	15.35	2.03	3.41	1.91	2.56	2.47
Attended high school with at least 75 percent college/university placement rate													
Yes	51.9	15.2	36.8	21.1	6.7	14.4	16.2	11.0	5.2	6.3	2.6	3.7	4.5
std. error	5.05	1.63	4.71	2.92	1.21	2.45	6.66	6.63	0.90	1.75	1.63	0.87	2.17
No	39.7	8.4	31.3	38.3	12.2	26.1	4.6	1.1	3.5	12.0	3.7	8.3	5.5
std. error	1.39	0.78	1.36	1.52	1.06	1.36	0.58	0.20	0.53	0.85	0.45	0.76	0.72
Earned high school GPA of 3.5 or higher													
Yes	57.7	21.3	36.5	25.6	11.6	14.0	7.6	2.8	4.9	6.3	3.0	3.3	2.7
std. error	2.58	1.83	2.85	2.30	1.57	1.97	0.97	0.52	0.80	0.83	0.54	0.63	0.56
No	38.8	7.1	31.7	37.4	10.2	27.2	6.3	3.0	3.3	11.4	3.3	8.2	6.1
std. error	1.58	0.75	1.48	1.74	0.94	1.51	1.90	1.82	0.47	0.90	0.57	0.72	0.85
Took calculus in high school													
Yes	54.8	24.3	30.5	23.2	10.3	12.9	13.8	9.5	4.3	4.6	1.5	3.1	3.6
std. error	4.23	2.27	2.95	3.20	2.01	2.73	5.81	5.74	0.74	0.88	0.37	0.75	0.71
No	39.6	6.2	33.4	38.1	10.6	27.6	4.5	1.0	3.5	12.0	3.7	8.3	5.8
std. error	1.46	0.71	1.45	1.49	0.84	1.31	0.54	0.19	0.50	0.89	0.59	0.72	0.83
Took physics and/or chemistry in high school													
No chemistry/physics	25.7	3.1	22.6	45.4	8.1	37.3	2.2	0.6	1.6	16.1	3.5	12.6	10.5
std. error	2.65	1.56	2.37	3.11	1.76	2.99	0.75	0.26	0.71	2.41	0.99	2.29	2.96
Took chemistry	38.3	5.6	32.7	39.2	10.7	28.5	4.4	0.7	3.8	12.6	4.3	8.3	5.4
std. error	1.86	0.70	1.83	1.93	1.12	1.70	0.75	0.21	0.72	1.29	1.00	0.90	1.03
Took physics	52.6	16.6	36.0	27.5	11.1	16.4	9.8	5.6	4.2	6.4	2.1	4.3	3.7
std. error	2.45	1.32	2.24	2.13	1.30	1.75	3.02	2.96	0.56	0.75	0.36	0.66	0.53

Table 1. —Percent of 1992 high school graduates who enroll in 4-year universities and colleges by type of school attended, and selected demographic and academic characteristics—Continued

	National Universities			Regional Universities			National Liberal Arts Colleges			Regional Liberal Arts Colleges			Other Schools
	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All
Took foreign language in high school													
Less than 2 years	30.8	2.1	28.7	44.1	4.8	39.3	2.1	0.0	2.1	16.5	4.2	12.3	6.5
std. error	2.86	0.75	2.85	2.87	0.98	2.92	0.60	0.00	0.60	2.17	0.86	2.12	1.19
2ND Year	39.7	4.4	35.3	40.5	12.1	28.4	3.1	0.3	2.8	10.7	4.0	6.7	6.0
std. error	1.92	0.78	1.92	1.96	1.52	1.71	0.47	0.16	0.45	1.24	0.93	0.80	1.18
3RD Year	48.3	13.6	34.7	31.1	11.9	19.3	6.8	1.5	5.4	8.1	2.3	5.8	5.7
std. error	2.89	1.34	2.69	2.72	1.43	2.57	1.25	0.36	1.18	1.10	0.48	0.97	1.68
4TH Year	50.8	21.6	29.1	23.2	10.1	13.1	14.9	10.6	4.3	8.0	2.3	5.7	3.2
std. error	3.86	2.48	2.77	2.59	1.39	2.07	5.26	5.43	0.95	1.52	0.66	1.38	0.71
Took AP exams													
Yes	66.2	33.8	32.4	18.7	13.2	5.4	11.1	5.2	6.0	1.3	1.0	0.3	2.7
std. error	5.46	3.67	3.67	6.01	6.07	1.61	2.39	1.35	1.74	0.61	0.54	0.28	1.51
No	41.5	8.8	32.8	35.8	10.3	25.5	6.3	2.8	3.5	10.9	3.3	7.5	5.5
std. error	1.47	0.77	1.40	1.51	0.77	1.34	1.51	1.51	0.45	0.78	0.50	0.62	0.71
Scored 1100 or higher on the SAT													
Yes	57.5	25.0	32.5	20.9	10.3	10.6	14.1	9.7	4.4	4.9	2.3	2.6	2.6
std. error	3.87	2.17	2.90	2.35	1.42	1.95	5.09	5.31	0.80	0.75	0.50	0.53	0.54
No	38.9	5.5	33.4	39.1	11.0	28.1	4.5	0.7	3.7	12.2	3.5	8.6	5.4
std. error	1.63	0.73	1.56	1.76	1.08	1.52	0.61	0.18	0.58	1.00	0.66	0.79	0.70
Scored 1250 or higher on the SAT													
Yes	65.1	37.1	28.0	19.1	9.2	9.9	9.7	4.5	5.2	4.1	1.9	2.2	2.1
std. error	4.35	3.65	3.54	4.67	2.05	4.71	1.77	0.96	1.54	1.03	0.69	0.76	0.74
No	41.8	8.2	33.7	35.7	11.0	24.6	6.8	3.0	3.8	10.8	3.3	7.5	4.9
std. error	1.64	0.82	1.50	1.68	0.94	1.40	1.86	1.78	0.49	0.85	0.56	0.66	0.59

Table 1.—Percent of 1992 high school graduates who enroll in 4-year universities and colleges by type of school attended, and selected demographic and academic characteristics—Continued

	National Universities			Regional Universities			National Liberal Arts Colleges			Regional Liberal Arts Colleges			Other Schools
	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All	Tier 1	Tier 2-4	All
Participated in two or more high school extracurricular activities													
Yes	43.9	12.0	31.9	34.2	11.5	22.7	8.2	4.0	4.2	9.4	3.1	6.3	4.3
std. error	1.72	0.95	1.66	1.70	1.02	1.46	2.05	2.08	0.54	0.81	0.40	0.71	0.65
No	40.2	5.7	34.5	36.8	8.4	28.5	3.2	0.6	2.6	12.0	3.5	8.5	7.7
std. error	2.26	1.04	2.22	2.29	1.12	2.04	0.64	0.20	0.61	1.57	1.12	1.14	1.53
Received positive teacher comments													
Yes	52.0	16.1	35.9	30.3	11.0	19.4	5.8	2.1	3.7	7.5	2.5	5.0	4.3
std. error	1.87	1.27	1.78	1.87	1.23	1.67	0.64	0.36	0.49	0.79	0.38	0.69	0.64
No	35.1	5.1	30.0	38.6	10.2	28.4	7.3	3.6	3.6	12.8	3.9	8.9	6.3
std. error	1.88	0.68	1.79	2.03	0.97	1.77	2.55	2.59	0.65	1.18	0.77	0.92	1.05

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Educational Longitudinal Study of 1988 and *U.S. News and World Report* 1995.

Table 2.—Predictors of enrollment in Tier 1 National universities using logistic regression

Variable	Coefficient	Std. Error	T	Significance
GPA 3.5 or more	0.41	0.18	2.28	Yes
Calculus	0.62	0.19	3.26	Yes
Physics	0.36	0.18	2.01	Yes
Advanced Placement	0.30	0.23	1.30	No
Foreign Language—3 or more years	1.15	0.22	5.23	Yes
SAT 1100 or more	0.90	0.22	4.09	Yes
School activities	0.24	0.23	1.04	No
Teacher recommendations	0.60	0.21	2.86	Yes
College Placement rate	0.14	0.24	0.58	No
Catholic	0.12	0.28	0.43	No
Private	0.37	0.44	0.84	No
Computer in home	0.49	0.17	2.88	Yes
Family SES	0.17	0.14	1.21	No
Asian	1.25	0.19	6.58	Yes

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Educational Longitudinal Study of 1988 and *U.S. News and World Report* 1995.

Table 3. —Characteristics of NELS:88 respondents who participated in the second and third follow-ups of NELS:88 and were part of the transcript study, by attendance at 4-year college and questionnaire completion status

	Gender		Race					Social economic status			Type of high school		
	Male	Female	Asian	Hispanic	Black	White	American Indian	Low	Medium	High	Public	Catholic	Other private
Total(weighted percent)	50.8	49.2	4.0	11.3	13.6	69.6	1.5	23.6	50.8	25.6	92.0	4.6	3.4
- s.e.	0.92	0.92	0.41	0.95	0.92	1.33	0.35	0.90	0.98	1.10	0.84	0.45	0.60
Attended 4-year college[a] -- Complete data - used for analysis	45.8	54.2	5.5	6.3	11.3	76.5	0.4	8.1	45.2	46.7	83.6	9.7	6.7
- s.e.	1.38	1.38	0.52	0.69	1.05	1.33	0.10	0.60	1.60	1.75	2.02	1.05	1.42
Attended 4-year college[b] -- Incomplete data - not used for analysis	58.5	41.5	1.2	5.8	22.8	69.6	0.6	17.3	47.4	35.3	91.2	2.7	6.1
- s.e.	7.20	7.20	0.39	1.81	6.55	6.70	0.58	4.37	6.56	6.09	3.04	1.51	2.57
Not in Sample or did not attend 4-year institution	52.8	47.2	3.4	13.8	14.3	66.6	2.0	31.6	53.7	14.6	96.0	2.2	1.8
- s.e.	1.18	1.18	0.52	1.23	1.05	1.60	0.49	1.15	1.17	1.07	0.62	0.33	0.53

[a] Sample of respondents used in the current analysis. These individuals had complete postsecondary and high school transcript data.
[b] Sample of respondents who attended 4-year colleges but had incomplete data.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Educational Longitudinal Study of 1988 and *U.S. News and World Report* 1995.

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